

REMARKS

In an Office Action mailed on November 6, 2002, an objection was made to the drawing; claims 1-14 were rejected under 35 U.S.C. § 112, first paragraph; claims 1-29 were rejected under 35 U.S.C. § 112, second paragraph; and claims 1-29 were rejected under 35 U.S.C. § 102(b) as being anticipated by Brown. A proposed drawing Amendment is being submitted concurrently herewith to overcome the objection to the drawing. The §§ 112 and 102 rejections are discussed in the corresponding sections below.

A marked-up version of the amended claims is submitted as a separate document. The undersigned has endeavored to ensure that the clean and marked-up versions of the amended claims correspond. However, the Examiner is specifically requested to verify that these two versions of the claims are consistent.

§ 112, First Paragraph Rejections of Claims 1-14:

The Examiner rejects independent claim 1 under 35 U.S.C. § 112, first paragraph due the alleged lack of support in the specification for the limitations of claim 1. However, the Examiner fails to point out which elements of claim 1 are not supported in the specification. It is noted that on page 3 of the application, the specification describes a top signal layer 34 that includes embedded supply voltage planes 46. *See, for example*, ll. 1-14 on p. 3 of the specification. Thus, because at least one embodiment of the invention set forth in claim 1 is described in the specification, the § 112, first paragraph rejection of claim 1 is overcome.

The Examiner also rejects claim 2 under § 112, first paragraph. Once again, the Examiner does not identify which elements of claim 2 are allegedly not supported by the specification. It is noted that at least one embodiment of a supply voltage plane layer that is separate from a signal plane layer is described in, for example, lines 1-14 on page 3 of the application. Therefore, it is submitted that claim 2 is fully supported by the specification, and thus, withdrawal of the § 112, first paragraph rejection of claim 2 is requested.

Regarding the § 112, first paragraph rejection of claim 5, the Examiner notes a lack of support for the voltage plane having an outer boundary. However, in lines 26-29 on page 3 of the application, the specification describes a supply voltage plane 46 that has an outer boundary that is generally established by the supply voltage pins of an associated component 50 so that the pins 52 vertically extend into the associated plane 56 near the plane's outer periphery. Therefore, it is submitted that the limitations set forth in claim 5 are supported by at least this one embodiment of claim 5 described in the application. Therefore, for at least this reason, withdrawal of the § 112, first paragraph rejection of claim 5 is requested.

Regarding the § 112, first paragraph rejection of claim 8, the specification states, "each ground plane 70 has a boundary that is generally defined by locations of ground vias 39 that extend from...." Specification, ll. 3-4, p. 4. Therefore, it is submitted that the limitations of claim 8 are supported by at least one embodiment that is described in the specification, and thus, withdrawal of the § 112, first paragraph rejection of claim 8 is requested.

Regarding the § 112, first paragraph rejection of claim 11, the specification states, "in some embodiments of the invention, the ground plane 70 circumscribes the projection of the supply voltage plane 46 onto the supply voltage plane layer 36." Specification, ll. 11-13, p. 4. Therefore, the specification describes at least one embodiment of the invention set forth in claim 11, and thus, withdrawal of the § 112, first paragraph rejection of claim 11 is requested.

Although the Office Action states that claims 1-14 are rejected under 35 U.S.C. § 112, first paragraph, the Examiner also mentions a possible § 112, first paragraph problem with claim 19. However, it is submitted that no such § 112, first paragraph problem exists with claim 19, as the specification describes in at least one embodiment a ground plane that has an outer boundary that is established by ground connections. *See, for example*, ll. 3-4, p. 4 of the specification.

§ 112, Second Paragraph Rejections of Claims 1-29:

The Examiner rejects claim 1 due to the allegation that, "the phrase of 'a supply voltage plane embedded in the signal layer' is not understood." Office Action, p. 3. The Examiner suggests that "in" be replaced with "inside." However, Applicant submits that the Examiner has

not submitted a proper basis for a § 112, second paragraph rejection. In this manner, Applicant does not understand why replacement of the word "in" with the word "inside" overcomes an alleged § 112, second paragraph problem with claim 1. Due to the lack of a proper basis for the § 112, second paragraph rejection of claim 1, Applicant requests withdrawal of the § 112 rejection of claim 1.

Likewise, in the § 112, second paragraph rejection of claim 15, the Examiner alleges that "in" of claim 15 should be replaced with "inside" to overcome the § 112, second paragraph rejection. However, Applicant submits that as currently written, claim 15 overcomes the § 112, second paragraph rejection, as the Examiner fails to provide a proper basis to establish why the claims do not particularly point out and distinctly claim the subject matter that the Applicant regards as the invention. Therefore, for at least this reason, withdrawal of the § 112, second paragraph rejection of claim 15 is requested.

For purposes of expediting prosecution, claims 13 and 14 have been amended to overcome the § 112, second paragraph rejections.

Regarding the § 112, second paragraph rejection of claim 20, the Examiner fails to point out a proper basis for the § 112, second paragraph rejection of this claim. In this manner, the Examiner states, "Applicant has to clarify what 'method' to apply to." Office Action, p. 3. However, this is not a proper basis for a § 112, second paragraph rejection. It is noted that claim breadth is not to be equated with indefiniteness. M.P.E.P. § 2173.04. The Examiner also contends that the phrase on line 2 of claim 20 is unclear. However, the Examiner fails to establish a proper basis for the § 112, second paragraph rejection of the claim based on the language in line 2. More specifically, the Examiner does not set forth why claim 20, as currently written, does not particularly point out distinctly claim the subject matter that the Applicant's regard as his invention. The language is grammatically correct, has antecedent basis and is not inconsistent with the specification. Thus, withdrawal of the § 112, second paragraph rejection of claim 20 is requested.

§ 102 Rejections of Claims 1-14:

The printed circuit board of claim 1 includes a signal layer and a supply voltage plane that is embedded in the signal layer.

Contrary to the limitations of independent claim 1, Brown neither teaches nor suggests a signal layer that has a supply voltage plane that is embedded in the signal layer. In discussing the § 102 rejection of claim 1, the Examiner states that Brown discloses a supply voltage plane 3 that is embedded *between* signal layers 1 and 8. However, claim 1 specifically recites that the supply voltage plane is embedded *in the signal layer*, not located *between two signal layers*. Therefore, when the language of claim 1 is considered in its entirety, Brown does not teach or suggest all limitations of claim 1.

Claims 2-14 are patentable for at least the reason that these claims depend from an allowable claim. Thus, for at least the reasons stated above, withdrawal of the § 102 rejections of claims 1-14 is requested.

§ 102 Rejections of Claims 15-19:

The printed circuit board of independent claim 15 includes a supply voltage plane layer and a ground plane that is embedded in the supply voltage plane layer.

Although Brown discloses a voltage plane 3 and discloses a ground plane 6, Brown neither teaches nor suggests a ground plane that is embedded in a supply voltage plane layer. Therefore, for at least this reason, Brown fails to teach all limitations of independent claim 15.

Claims 16-19 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, for at least the reasons stated above, withdrawal of the § 102 rejections of claims 15-19 is requested.

Rejections of Claims 20-26:

As amended, the method of independent claim 20 recites that for each high frequency component to be mounted on a printed circuit board, an associated supply voltage plane is embedded in a signal layer of the printed board.

Contrary to the limitations of claim 20, Brown neither teaches nor suggests a supply voltage plane that is embedded in a signal layer of a printed circuit board. Thus, Brown neither teaches nor suggests, for each high frequency component to be mounted on a printed circuit board, embedding an associated supply voltage plane in a signal layer of the printed circuit board.

Claims 21-26 are patentable for at least the reason that these claims depend from an allowable claim. Thus, for at least the reasons stated above, claims 20-26 overcome the § 102 rejections in view of Brown.

Rejections of Claims 27-29:

The method of claim 27 recites that for each high frequency component to be mounted on a printed circuit board, an associated ground plane is embedded in a supply voltage plane layer of the printed circuit board.

Brown neither teaches nor suggests embedding a ground plane in a supply voltage plane layer of a printed circuit board. Thus, Brown neither teaches nor suggests for each high frequency component to be mounted on a printed circuit board, embedding an associated ground plane in a supply voltage plane layer of the printed circuit board.

Claims 28 and 29 are patentable for at least the reason that these claims depend from an allowable claim. Thus, for at least the reasons stated above, withdrawal of the § 102 rejections of claims 27-29 is requested.

CONCLUSION

In view of the foregoing, withdrawal of the §§ 112 and 102 rejections and a favorable action in the form of a Notice of Allowance are requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504 (ITL.0644US).

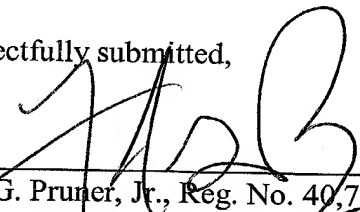
Respectfully submitted,

Date: January 29, 2003



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CLAIM AMENDMENTS

The claims have been amended as follows:

11. (Amended) The printed circuit board of claim 6, wherein the ground plane has an outer boundary that circumscribes a projection of the supply voltage plane onto the supply voltage plane [signal] layer.
13. (Amended) The printed circuit board of claim 6, wherein the ground plane reduces [is arranged to reduce] an inductance.
14. (Amended) The printed circuit board of claim 1, wherein the supply voltage reduces [plane is arranged to reduce] an inductance.
20. (Amended) A method comprising:
for each high frequency component to be mounted on a printed circuit board, embedding an associated supply voltage plane in a signal layer of the printed circuit board to provide power to the component, the signal layer being used to communicate high frequency signals associated with the high frequency component or components.

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